denser, components. The negative elements have, because of the relatively greater density which they inherited from an original state, been able to force the positive into higher positions during much of geologic time, so that they are characterized by a greater thickness of fairly continuous sediments. The positive elements found their levels of isostatic adjustment to be higher, so that they have more often constituted our land masses. The original relations of these components to one another has been greatly modified by tangential pressure and igneous intrusions, making occasional readjustments necessary; though the continent as a whole has maintained its equilibrium with the exceptionally heavy oceanic segments. H. H.

Peat, Essays on Its Origin, Uses, and Distribution in Michigan. By CHARLES A. DAVIS. A part of the report for 1906 of the Michigan Geological Survey, pp. 105–360, pls. XIII–XXXI, figs. 2–20. Lansing, 1907.

The author has very properly taken up the study of peat from a botanical standpoint, though geological factors are by no means ignored. Michigan peat is composed largely of the remains of plants which grew below or near the water-level; sphagnum forms only shallow superficial deposits. The living plant society varies as the development of a bog advances, for the changed conditions created by one group of species may enable an invading group to obtain a foothold where it was unable to live before the introduction of the earlier group. We cannot, therefore, expect the flora at present living in a swamp to indicate the quality of the underlying peat. A peculiar type of structureless peat was found which consisted largely of algal remains with occasional diatoms and an abundance of the three-celled pollen grains of conifers. Under proper conditions peat of this character would form a deposit like the structureless cannel coals of the Carboniferous. Many uses for which peat could be profitably employed are pointed out. In Michigan, especially, peat coke might be made to bear a close relationship to the iron industry. H. H.

The California Earthquake of 1906. By DAVID STARR JORDAN and Others. San Francisco: A. M. Robertson, 1907.

This volume contains a collection of articles, partly of a semi-popular nature, by D. S. Jordan, J. C. Branner, G. K. Gilbert, S. Tabor, F. Omori, H. W. Fairbanks, and Mary Austin, which had previously appeared in various publications, together with a new essay by Charles Derleth, Jr., on the effects produced by the earthquake on structures and structural

materials. Both scientific and non-scientific readers will find much to interest them in it. The illustrations, of which the book contains 143, are noteworthy. H. H.

Contributions to the Geology of the Falkland Islands. By J. G. ANDERSSON. With 9 plates, and maps. Wissenschaftiche Ergebnisse der schwedischen Südpolar-Expedition, 1901–03, Band III, Lieferung 2. London: Dulau & Co.

In their deeply indented coast lines with numerous drowned valleys, the Falklands show a recent submergence of about 100 meters. During the ice age they stood at about their present height above the sea, while in pre-Glacial times they were somewhat higher and carried considerable rivers. A striking feature on East Falkland is the so-called "stone-rivers," which are level sheets of huge, angular bowlders streaming down the hillsides and reaching far out on almost level surfaces. This phenomenon is the product of solifluction, i. e., of gradual creep down the slopes of masses of waste saturated with water. Glacial action has not been the direct agent; for the islands seem never to have possessed a large ice cap. Thick peat deposits in this region furnish yet another instance of notable accumulations of vegetation in *cool*, moist climates. Devonian sandstone is found in the islands, resting on an Archean basement, while younger Paleozoic rocks are also present. H. H.

The Meteor Crater of Canyon Diablo, Arizona; Its History, Origin, and Associated Meteoric Irons. By GEORGE P. MERRILL. Reprinted from Smithsonian Miscellaneous Collections (Quarterly Issue), Vol. L, Part 4, pp. 461–98, pls. LXI–LXXV, figs. 124–29. Washington, January 27, 1908.

The author inclines strongly to the view that the peculiar topographic feature commonly known as Coon Butte owes its origin to the impact of a meteorite of unprecedented size. The crater, which is 4,000 feet in diameter and 500 feet deep, lies in a region of undisturbed sedimentary rocks which are horizontally bedded except in the immediate vicinity of the crater itself, where they show a strong quaquaversal dip. Extensive development work, now being carried on by a mining company in the field, fails to substantiate the theory that volcanic action has been the factor involved, but shows that the disturbance was essentially superficial. Microscopic and megascopic studies of the fragmental materials in and about the crater indi-